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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,780

11/14/2005

Matti Salmenkaita

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32294 7590 10/09/2007  
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EXAMINER

CASCA, FRED A

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/539,780	SALMENKAITA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Fred A. Casca	2617	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-12 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>06/20/2005</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1-3, and 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al (US 7,197,303 B2) over Giallorenzi et al (US 7,190,683 B2).

Referring to claim 1, Sakai discloses a method of channel allocation in a cellular communication network wherein a radio channel is to be selected for establishment of a connection in an environment with potentially interfering signals (abstract and col. 1, lines 30-67), the method comprising:

establishing a radio channel candidate (figure 1-3, col. 4, lines 5-10, note that establishing a radio channel candidate is inherent in TDMA and other cellular communication systems);

processing the radio channel candidate with potentially interfering signals (figures 2-4, and col. 2, lines 2-40, "carrier-to-interference ratios are measured", "(CIRs) are detected in the order of the priority. When a detected CIR is firstly satisfied with a predetermined CIR condition, the communication channel corresponding to the detected CIR is allocated to the mobile station") and calculating a carrier to interference ratio

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(CIR) for the selected carrier frequency of the radio channel candidate and the potentially interfering signals (figures 2-4, and col. 2, lines 2-40, “calculating a carrier to interference ratio (CIR)”);

using criteria based on at least one of the interference ratio and the carrier to interference ratio in a selection process for selecting a channel for the connection to be established (figures 2-6, and col. 2, lines 2-40, “calculating a carrier to interference ratio (CIR).

Sakai fails to specifically disclose calculating a dominant interference ration (DIR) being the ratio of the strongest potentially interfering signal with respect to the other potentially interfering signals; and calculating based on DIR or CIR in the format claimed by applicant.

Giallorenzi discloses calculating a dominant interference ration (DIR) being the ratio of the strongest potentially interfering signal with respect to the other potentially interfering signals; and calculating based on DIR (col. 6, lines 40-51, col. 9, lines 41-56, and col. 14, lines 4-10, “channel allocation”, “dominant interference results from adjacent cells”, “in a S-CDMA system, in-cell interference is mitigated by the orthogonal nature of the S-CDMA, implying that the dominant interference results from adjacent cells”).

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the method of Sakai, in the format claimed by applicant, by incorporating the teachings of Giallorenzi into that of Sakai, for the purpose of providing a more efficient channel allocation system.

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Referring to claim 2, the combinations of Sakai/Giallorenzi disclose the method of claim 1, and further disclose the step of processing interference cancellation (col. 4, lines 5-24).

Referring to claim 3, the combinations of Sakai/Giallorenzi disclose the method of claim 2, and further disclose the dominant interference ratio is used to establish an indication as to the gain provided by the interference cancellation technique in the format claimed by applicant (Giallorenzi, col. 6, lines 40-51, col. 9, lines 41-56, and col. 14, lines 4-10, "channel allocation", "dominant interference results from adjacent cells", "in a S-CDMA system, in-cell interference is mitigated by the orthogonal nature of the S-CDMA, implying that the dominant interference results from adjacent cells").

Referring to claim 5, the combinations of Sakai/Giallorenzi disclose the method of claim 1.

The combination does not disclose one of the criteria used in the selection process is the maximum value of the minimum difference between the calculated carrier to interference ratio and a target carrier to interference ratio.

It would have been an obvious design choice to modify the combination by allowing one of the criteria used in the selection process to be the maximum value of the minimum difference between the calculated carrier to interference ratio and a target carrier to interference ratio, since applicant has not disclosed that such limitation solves any stated problems or is for any particular purpose and it appears the method would perform equally well without having the additional limitation claimed by applicant.

Referring to claim 6, the combinations of Sakai/Giallorenzi disclose the method of claim 1.

The combination does not disclose one of the criteria used in the selection process is the average dominant interference ratio taken over a set of  $n$  connections which could be interfered with by the connection to be established.

It would have been an obvious design choice to allow one of the criteria used in the selection process to be the average dominant interference ratio taken over a set of  $n$  connections which could be interfered with by the connection to be established, since applicant has not disclosed that such limitation solves any stated problems or is for any particular purpose and it appears the method would perform equally well without having the additional limitation claimed by applicant.

Referring to claim 7, the combinations of Sakai/Giallorenzi disclose the method of claim 3, and further disclose the gain provided by the interference cancellation function technique is established from the dominant interference ratio using a predefined function (col. 6, lines 40-51, col. 9, lines 41-56, and col. 14, lines 4-10, "in a S-CDMA system, in-cell interference is mitigated by the orthogonal nature of the S-CDMA, implying that the dominant interference results from adjacent cells").

Referring to claim 18-10, claims 8-10 define a system for channel allocation reciting features analogous to the features of the channel allocation method of claims 1-3 (as rejected above). Thus, the combinations of Sakai/Giallorenzi disclose all elements of claims 8-10 (please see the rejection of claims 1-3 above).

Referring to claim 11, the combinations of Sakai/Giallorenzi disclose a base station controller in a cellular communication network which includes a system according to claim 8 (Sakai, col. 3, lines 28-35, col. 4, lines 50-67 and figure 1, "TDMA").

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Referring to claim 12, the combinations of Sakai/Giallorenzi disclose a cellular communication network comprising a plurality of base stations, at least some of which include a system according to claims 8 (Sakai, col. 3, lines 28-35, col. 4, lines 50-67 and figure 1, "TDMA").

***Allowable Subject Matter***

3. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred A. Casca whose telephone number is (571) 272-7918. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid, can be reached at (571) 272-7922. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
LESTER G. KINCAID  
SUPERVISORY PRIMARY EXAMINER